

## CLAIMS

**WHAT IS CLAIMED IS:**

1. A control apparatus comprising:

a controller which can be pressed;

a detecting device for outputting an analog signal corresponding to the pressing operation of said controller; and

an output unit for a digital signal having a plurality of bits which converts the analog signal that is outputted by said detecting device in accordance with the pressing operation of said controller into a digital signal having a plurality of bits in accordance with an output level of the analog signal.

2. An apparatus according to Claim 1, wherein

said detecting device is a pressure-sensitive device which is arranged at a position to which a pressure acting on said controller is transmitted.

3. An apparatus according to Claim 1, wherein

said detecting device comprises a conductive member which moves together with said controller and has elasticity and a resistor which is disposed at a position which said conductive member is brought in contact with and out of contact with, and said resistor outputs the analog signal corresponding to a contact area with said conductive member.

4. An apparatus according to Claim 1, wherein

said detecting device comprises a resistor which moves together with said controller and a conductive member that is disposed at a position which said conductive member is brought in contact with and out of contact with, and has elasticity, and



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11. An apparatus according to Claim 10, wherein  
said resistor is formed with a shape having a peaked longitudinal-section surface.

12. An apparatus according to Claim 10, wherein said resistor is formed with a shape  
5 having a trapezoidal longitudinal-section surface.

13. An apparatus according to Claim 10, wherein  
said resistor is formed with a spherical surface which faces said conductive  
member.

14. An apparatus according to Claim 3 or 4, wherein  
said resistor is formed with a shape having a cross-sectional area which  
decreases step by step toward a top portion which faces said resistor.

- 15 15. An apparatus according to Claim 3 or 4, wherein  
said conductive member is deformed in accordance with a contact pressure with  
said resistor and has a contact area with said resistor is changed, and  
said resistor divides a contact region of said conductive member by a space and  
the contact area in accordance with the deformation of said conductive member  
20 increases step by step.

16. An apparatus according to any one of Claims 1 to 15, wherein  
said output unit for the digital signal having the plurality of bits comprises:  
a level segmenting unit for segmenting the output level of the analog signal  
which is outputted by said detecting device in accordance with the pressing operation of  
said controller; and  
an A/D converting unit for converting said analog signal into the digital signal in

accordance with the output levels which are segmented by said level segmenting unit.

17. An apparatus according to Claim 16, wherein

said level segmenting unit uniformly segments the output level of the analog signal which is outputted by said detecting device in accordance with the pressing operation of said controller.

18. A detecting device used for a control apparatus having a controller that can be pressed and operated which outputs an analog signal corresponding to the pressing operation of said controller, comprising

a conductive member which moves together with said controller and has elasticity and a resistor which is disposed at a position to which said conductive member is connected and disconnected, wherein said resistor outputs the analog signal corresponding to a contact area with said conductive member.

19. A detecting device used for a control apparatus having a controller that can be pressed and controlled which outputs an analog signal corresponding to the pressing operation of said controller, comprising:

a resistor which moves together with said controller, and

a conductive member that is disposed at a position to which said resistor is connected and disconnected and has elasticity, wherein said resistor outputs the analog signal corresponding to a contact area with said conductive member.

20. A device according to Claim 18 or 19, wherein

said conductive member is deformed in accordance with a contact pressure with said resistor and the contact area with said resistor changes.

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21. A device according to Claim 20, wherein

said conductive member is formed with a shape having a peaked longitudinal-section surface.

5 22. A device according to Claim 20, wherein

said conductive member is formed with a shape having a trapezoidal longitudinal-section surface.

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10 23. A device according to Claim 20, wherein

said conductive member is formed with a shape having a cross-sectional area which decreases step by step towards a top portion that faces said resistor.

24. A device according to Claim 20, wherein

15 said conductive member is formed with a shape having a spherical surface which faces said resistor.

25. A device according to Claim 18 or 19, wherein

said resistor is formed with a shape having a cross-sectional area which decreases towards a top portion that faces said conductive member.

20 26. A device according to Claim 25, wherein

said resistor is formed with a shape having a peaked longitudinal-section surface.

27. A device according to Claim 25, wherein

25 said resistor is formed with a shape having a trapezoidal longitudinal-section surface.

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28. A device according to Claim 25, wherein

said resistor is formed with a shape having a spherical surface which faces said conductive member.

29. A device according to Claim 18 or 19, wherein

said resistor is formed with a shape having a cross-sectional area which decreases step by step towards a top portion that faces said conductive member.

30. A device according to Claim 18 or 19, wherein

10           said conductive member is deformed in accordance with the contact pressure  
with said resistor and the contact area with said resistor changes and

a contact region with said conductive member of said resistor is divided by a space and the contact area increases step by step in accordance with the deformation of said conductive member.

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